CĂTĂLINA CANGEA

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PERSONAL PROFILE

Second-year PhD student at the University of Cambridge, focused on designing machine learning methods for multimodal, visual reasoning and relational tasks. Born on May 17, 1994 in Ploieşti, România.

EDUCATION

Department of Computer Science, University of Cambridge, UK

PhD in Machine Learning (October 2017–present)

MPhil in Advanced Computer Science (October 2016–July 2017)   *Distinction (81%)*

BA in Computer Science (October 2013–June 2016)   *First Class (75%) - 3rd year*

Colegiul Naţional "I.L.Caragiale", Ploieşti, România

Computer Science & Mathematics (September 2009–May 2013)   *Valedictorian (grade 10/10)*

RESEARCH PUBLICATIONS

The PlayStation Reinforcement Learning Environment (second author)

New environment for evaluating RL algorithms. Sample action-driven abstraction for a PlayStation game. Support for OpenAI Gym, baseline results. Presented at the *NeurIPS 2019 Deep RL Workshop*.

XFlow: Cross-modal Deep Neural Networks for Audiovisual Classification

Multimodal architectures with cross-modal dataflow. SOTA on benchmarks. Published in *IEEE TNNLS*. Presented at the *ARM Research Summit 2017* and *CMCML Workshop, ICDL-EPIROB 2017*.

VideoNavQA: Bridging the Gap between Visual and Embodied Question Answering

Introduced a novel task that studies QA performance in visually rich, EQA-like settings with nearly-ideal navigation paths. Generalised VQA paradigms to reason across time. Published at *BMVC 2019*.

Spatio-Temporal Deep Graph Infomax (third author)

Unsupervised node representation learning using mutual information maximisation. Improves predictive performance of spatio-temporal auto-regressive models. Presented at the *ICLR 2019 RLGM Workshop*.

Towards Sparse Hierarchical Graph Classifiers (joint first author)

CNN-like architecture with sparse pooling for graph-structured data. Matched SOTA on benchmarks, memory reduced from $O(V^2)$ to $O(V + E)$. Presented at the *NeurIPS 2018 R2L Workshop*.

Structure-Based Networks for Drug Validation

Drug toxicity prediction using gene expression levels and chemical structural information. Presented at the *NeurIPS 2018 ML4H Workshop* and additional results at the *ICLR 2019 AISG Workshop*.

INTERNSHIPS AND ML EXPERIENCE

AI Residency—X, the moonshot factory   May 2019–August 2019

Worked on an early-stage project, using and adapting recent ML techniques to a real-world problem.

Software Engineer Intern—Facebook London June 2016–September 2016

Worked on the LogDevice team, making client operations on a distributed RocksDB data store more efficient and flexible, while leading to fewer system failures.

Music Genre Classification using CNNs—Undergraduate Project October 2015–May 2016

Implemented a deep learning system in Python/CUDA, trained on 100 spectrograms per genre, accuracies of 99.2%, 80% and 69% for 2, 4 and 6 classes respectively. Dissertation received a First Class mark.

Software Engineer Intern—Facebook New York July 2015–September 2015

Worked on iOS Product Infrastructure to reduce the time taken by the Facebook iOS app to load content close to the screen current view. Improved the infrastructure and network request prioritisation system.

STEP Intern—Google Zürich June 2014–September 2014

Added processing progress for video uploads on YouTube. Developed a JavaScript client implementation that requests processing information from the server and thumbnail rendering of processing videos.

PROFESSIONAL SKILLS

Programming Languages	Python, C/C++, Objective-C, JavaScript, LaTeX, Java, C#, SML
Deep Learning APIs	PyTorch, TensorFlow, Graph Nets, Sonnet, Keras, CUDA

TEACHING / SUPERVISING

Master's projects: *"Representation Learning for Spatio-Temporal Graphs"* (2018–2019), *"Dynamic Temporal Analysis for Graph Structured Data"* (2018–2019)

Undergraduate projects: *"Deep Learning for Music Recommendation"* (2017–2018), *"The PlayStation Reinforcement Learning Environment"* (2018–2019)

Undergraduate courses: Artificial Intelligence, Databases, Discrete Maths, Foundations of Computer Science, Logic and Proof, Machine Learning and Real-World Data.

EXTRACURRICULAR ACTIVITIES

Chair/Deputy chair, women@CL, University of Cambridge	October 2018–present
ML Teaching Fellow, Cambridge Spark	May 2018–present
CS advisor, Gateway Academic Development Programme	October 2015–May 2016

PREVIOUS EXTRACURRICULAR ACHIEVEMENTS

Mathematics Contest "DUEL"	1st *place (team),* 3rd *place (individual) (Czech Republic, 2012)*
National Programming Olympiad	10th *place and Silver Medal (2011), Participation (2010)*
National English Language Olympiad	*Special Prize for Best Writing Style (2010)*

LANGUAGES

English (fluent), French (beginner), Romanian (native)

INTERESTS

Music	Vocals, keyboards, guitar for a rock band—we play in colleges, pubs and at May Balls
Rowing	King's Women's First Boat (Jan 2018–present), Darwin/King's Second Boat (Jan–Dec 2017)